Product Data Sheet

Chemical Properties

Product Name: Gabapentin
Cas No.: 60142-96-3
M.Wt: 171.24
Formula: C9H17NO2
Synonyms: N/A
Chemical Name: 2-[1-(aminomethyl)cyclohexyl]acetic acid
Canonical SMILES: C1CCC(CC1)(CC(=O)O)CN
Solubility: ≥8.56mg/mL in DMSO
Storage: Store at -20°C
General tips: For obtaining a higher solubility, please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.
Shopping Condition: Evaluation sample solution: ship with blue ice
All other available size: ship with RT, or blue ice upon request

Biological Activity

Targets: Neuroscience
Pathways: GABA Receptor
Description:
Gabapentin is structurally similar to GABA and is reported in various research studies to increase GABA concentrations within the brain. Gabapentin is also noted to bind to a novel site on voltage-sensitive Ca2+ channels. Additionally, Gabapentin is reported to demonstrate inhibition of dopamine release from caudate nucleus, prevent neuronal cell death, and is antinociceptive.

Reference:
### Protocol

**Cell experiment:**

<table>
<thead>
<tr>
<th>Cell lines</th>
<th>Pyramidal neocortical cells</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation method</td>
<td>Limited solubility. General tips for obtaining a higher concentration: Please warm the tube at 37 °C for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.</td>
</tr>
</tbody>
</table>

**Reacting conditions**

**Applications**

Gabapentin inhibited calcium currents in pyramidal neocortical cells (up to 34%). The gabapentin-mediated inhibition of calcium currents saturated at particularly low concentrations (around 10 μM), at least in neocortical neurons (IC50 about 4 microM).

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### Animal experiment [3]:

**Animal models**

Rat model of neuropathic pain dynamic allodynia, rat model of brain demyelination evoked by intracerebral injection (i.c.i) of ethidium bromide

**Dosage form**

Oral administration, 10-100 mg/kg

**Applications**

In the rat model of neuropathic pain dynamic allodynia, gabapentin (10-100 mg/kg, p.o.) dose-dependently blocked both types of allodynia. The intrathecal administration of gabapentin dose-dependently (1-100 μg/animal) blocked both static and dynamic alldynia. Administration of similar doses of gabapentin into the hind paw failed to block these responses. In a rat model of brain demyelination evoked by intracerebral injection (i.c.i) of ethidium bromide, gabapentin administered at 300 mg/kg increased cortical MDA by 66%. Gabapentin decreased GPx activity by 54.3%. Gabapentin decreased nitrite by 21.4% and 29.2% at 100 and 300 mg/kg, respectively. Gabapentin increased AChE activity increased by 28.6% and 69.3% at 100 and 300 mg/kg, respectively. Gabapentin decreased paraoxonase activity by 83.3% and 73% at 100 and 300 mg/kg, respectively.

**Other notes**

Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.
Reference:

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most ApexBio products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Short-term storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.